

MODIFICATION OF SELECTIVITY FOR SENSING FOR NANOSTRUCTURE SENSING DEVICE ARRAYS

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Abstract of the Disclosure

An electronic system for selectively detecting and identifying a plurality of chemical species, which comprises an array of nanostructure sensing devices, is disclosed. Within the array, there are at least two different selectivities for sensing among the nanostructure sensing devices. Methods for fabricating the electronic system are also disclosed. The methods involve modifying nanostructures within the devices to have different selectivity for sensing chemical species. Modification can involve chemical, electrochemical, and self-limiting point defect reactions. Reactants for these reactions can be supplied using a bath method or a chemical jet method. Methods for using the arrays of nanostructure sensing devices to detect and identify a plurality of chemical species are also provided. The methods involve comparing signals from nanostructure sensing devices that have not been exposed to the chemical species of interest with signals from nanostructure sensing devices that have been exposed to the chemical species of interest.

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